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FILED IN THE
UNITED STATES DISTRICT COURT
DISTRICT OF HAWAII

Attorneys for Plaintiffs

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF HAWAI'I

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SUE BEITIA, CLERK

'ILIO'ULAOKALANI COALITION, a Hawai'i nonprofit corporation; NĀ 'IMI)	Civil No. 04-00502 DAE BMK
PONO, a Hawai'i unincorporated association; and KĪPUKA, a Hawai'i unincorporated association,)	SUPPLEMENTAL DECLARATION
)	OF JOHN MICHAEL CASTILLO;
)	EXHIBIT "A"
Plaintiffs,))
))
v.))
))
DONALD H. RUMSFELD, Secretary of Defense; and FRANCIS J. HARVEY,))
Secretary of the United States))
Department of the Army,))
))
Defendants.))
))
))

SUPPLEMENTAL DECLARATION OF JOHN MICHAEL CASTILLO

I, JOHN MICHAEL CASTILLO, declare under penalty of perjury that:

1. I previously submitted a declaration in this case on December 14, 2006. This declaration supplements my previous testimony, responding to various mischaracterizations of my previous testimony and factual inaccuracies in the materials the U.S. Army filed on December 15, 2006.

2. Since finalizing my initial declaration, I have reviewed the Declaration of Michelle Mansker (dated December 15, 2006) and the attachments to that declaration, as well as the portions of the Army's Supplemental Brief on the Scope of Interim Injunctive Relief that discuss harms to biological resources.

3. Ms. Mansker and I were colleagues at the U.S. Fish and Wildlife Service's Pacific Islands Office, and, based on our time together, I am quite familiar with her professional background and areas of expertise. Ms. Mansker's masters thesis was a physiological study of the common 'ilima shrub (*Sida fallax*), which included two upland sites (both at 1,200 ft. elevation) along Hawai'i Loa and Wa'ahila Ridges and two coastal sites at Makapu'u Beach and Ka'ena Point, all of which are located on O'ahu. Her research focused on identifying physiological differences between the upright smooth-leaved form of 'ilima found on the ridges and the low and fuzzy-leaved form found at the beach. This research, even when combined with her research in various wet bogs and forests elsewhere in the state, in no way qualifies as "research in almost all of the plant communities present in Hawaii," as she broadly claims in paragraph 2 of her

declaration. It certainly has nothing to do with the threats facing the unique, montane dry forest ecosystems found at Pōhakuloa Training Area (“PTA”). Ms. Mansker’s work with the U.S. Fish and Wildlife Service similarly focused on plant species found on O‘ahu, as her declaration makes clear.

4. In contrast, as detailed in my initial declaration, since November of 1990 through the present (16 years), I have dedicated my career toward the conservation of Hawaiian dryland forest and shrubland ecosystems and the species they support, working on these issues with the Center for Ecological Management of Military Lands (“CEMML”) from November 1990 to August 1997, the U.S. Fish and Wildlife Service, Division of Ecological Services from August 1997 to July 2003, and presently as a forest management consultant with Hawaii Natural Resource Services, LLC and as a leader in current wildfire fuels management research on Hawai‘i Island. My work over all that time has been focused on understanding the factors limiting the self-perpetuation of ecosystems like those found at PTA and developing and implementing measures to manage those factors.

5. In dismissing my concerns about fire risk associated with the fountain grass invasion at PTA, Ms. Mansker relies on data that is completely out-of-date. I know this because I helped collect that data. In 1997, while at CEMML, I co-authored a book entitled the “Plant Communities of Pohakuloa Training Area,” which, as the title suggests, described the plant communities then found at PTA. The book was a companion to the “Rare Plants of Pohakuloa Training Area”

publication authored by Robert Shaw, which Ms. Mansker attaches as Attachment “1” to her declaration.

6. The Army used the vegetation data from the “Plant Communities of Pohakuloa Training Area” as the basis for the vegetation fuels classification in the portion of its Integrated Wildland Fire Management Plan (“IWFMP”) addressing conditions at PTA. Page 7-45 from the IWFMP is attached to Ms. Mansker’s declaration as Attachment “5.” As clearly stated on that page, “Plant Communities [at PTA] were mapped by Castillo *et. al.* (1997),” which is a reference to the book I co-authored.

7. In 1997, fountain grass distribution at PTA was rather limited, with the plant community type described as “Fountain grass grassland” covering only 1,507 acres (610 hectares) of the installation. Only 1,384 acres of the impact area (2.7%) were then occupied by fountain grass grassland. This is the out-of-date information on which Ms. Mansker erroneously bases her opinions.

8. Since the publication of the 1997 CEMML documents Ms. Mansker references, the fountain grass distribution at PTA has substantially increased. In 2005, while gathering wildfire fuels data as part of the federally-funded Pu‘u Anahulu Wildfire Management Study, I mapped the generalized distribution of the vegetation of West Hawai‘i, an area that included most of leeward northwest Hawai‘i Island, including PTA. This study revealed that, in 2005, approximately 14,900 acres (6,030 hectares) of the installation was covered by fountain grass,

nearly ten times the acreage as in 1997. The portion of the impact area covered by fountain grass had more than tripled, to approximately 5,519 acres (10.9% of the impact area). This equates to a rate of spread of 1,674 acres/year across the installation, or 517 acres per year within the impact area. Attached hereto as Exhibit "A" is a map I prepared showing the distribution at PTA of fountain grass in 1997 (in yellow), which, by 2005, had spread to the area shaded in red.

9. This rapid rate in the spread of fountain grass underscores the degree to which the landscape is being transformed through fountain grass invasion and the wildfires that it carries. The vegetation cover is dramatically different from what it was in 1997, when CEMML published the references on which Ms. Mansker relies, vastly increasing the threats to PTA's unique montane dry forest ecosystem from the Stryker training the Army proposes.

10. Ms. Mansker's claim that my opinions in this case are inconsistent with my earlier research erroneously assumes the environment at PTA is static and has not changed in the nearly ten years since the 1997 CEMML publications were written. As discussed above, the premise of her comments is inaccurate. The environment at PTA is rapidly changing due to the continued, rapid spread of fountain grass on the installation, including within the impact area. Areas that would not have supported fire in 1997 will now, including the additional more than 4,100 acres of impact area that fountain grass has occupied since that time. Land can only serve as a natural fuelbreak if it is maintained as such.

11. As Ms. Mansker points out under paragraph 9 of her declaration, the Army does not manage invasive species or actively fight fire within the impact area. This presents an increasing problem for managing the spread of fountain grass and wildfire risks across the installation. Contrary to Ms. Mansker's assertion at the end of that paragraph, fires within the impact area cannot reduce the chance of future fires, as prescribed burns are intended to do. While both remove fuel, prescribed burns are designed to accomplish a specific degree of fuels management in a precise way under specifically defined environmental and fuels conditions. By nature, wildfires, particularly those within the impact area, are unplanned, uncontrolled, often destroy native vegetation, and do not achieve any specific or prescribed objective.

12. The photograph Ms. Mansker discusses in paragraph 11 ("Attachment 3") provides no useful information regarding fire threats at PTA, as it is undated and unclassified. Moreover, there is no way to say with any certainty what shapes and colors correspond to different vegetation types. Accordingly, the photograph lends no support to her opinions.

13. In paragraph, 13 Ms. Mansker implies the Army's proposed management of feral ungulates will adequately address the threats posed to listed species and allow them safe haven for survival and recovery. However, as shown in Exhibit "A," much of the habitat the Army has fenced or will fence has already been invaded by fountain grass. Based upon observed and documented increases

in fountain grass distribution over the past nine years, it is reasonable to expect fountain grass to continue to spread in the habitats encompassed with those fences. A single fire event will then have the potential to burn very large portions of the fenced areas.

14. Lack of management of fountain grass distribution across the installation increases the probability of large fires and the chance that that a training-ignited fire will burn into adjacent fenced rare plant habitat areas. Ms. Mansker's statement in paragraph 13 that, “[w]ith the main threat (ungulates) to the majority of the listed species at PTA removed, the habitat and listed species should begin to recover on their own” is erroneous. While this statement may be true in a place that is free of fountain grass and other widespread, fire-adapted grasses, such as Hawai‘i Volcanoes National Park, it fails to consider the alien grass-carried fire threat that is unique to PTA and its immediately surrounding environment. Fencing without a comprehensive fine fuels management program is ineffective, as the habitat inside the fence is sure to burn eventually.

15. As previously stated, the 1997 CEMML study Ms. Mansker again references in paragraph 15 was completed nine years ago, when fountain grass did not occupy nearly as much area as it does now. While rare plants may at that time have occupied remote areas with little or no chance of being disturbed by military training, many of those populations are now gone due to fire. The ones that remain are at an increased risk of disturbance from military training due to the continued

spread of fountain grass that is now connecting large areas through continuous fine fuels. The proposed Stryker training would increase that risk, as explained in my previous declaration.

16. In paragraph 16, Ms. Mansker notes that I recognized the positive effects of isolation of the PTA environment from other historical land uses like cattle grazing. While this is true, it has no relevance to the question whether Stryker training is likely to increase harm to ecosystems at PTA. Whether or not Strykers train at PTA, cattle grazing will not occur there. The absence of cattle grazing is, therefore, part of the environmental baseline, against which the effects of Stryker training must be compared.

17. Figure 7 from the biological opinion does not, as Ms. Mansker claims in paragraph 17 of her declaration “undermine[]” my statement that fountain grass is continuing to spread at PTA, unabated by any meaningful control efforts. I know from personal experience that the fuels management corridors and firebreaks displayed in Figure 7 mostly mere lines on a map that correspond to already open areas with low grass cover. Fountain grass management at PTA has never occurred on any significant scale, and there is very little fountain grass management occurring at PTA now.

18. My conclusion that fountain grass will continue to spread at PTA, forming continuous stands is well-founded on the fact that, as discussed above, there has been a more than 13,000-acre increase in the distribution of fountain

grass at PTA between 1997 and 2005, with fountain grass moving in to dominate over 1,650 acres every year.

19. Similarly, my opinion that the fire threat existing around the Twin Pu‘us and throughout the northern portion of the impact area is increasing is well founded on the fact that fountain grass has drastically increased its spread over a short amount of time. The fuel-free access road to which Ms. Mansker refers in paragraph 18 may help provide a line of defense from which to combat future wildfires, but it would not in any way secure the Kīpuka Kalawamauna or other adjacent areas from burning from a fire started in the impact area.

20. Ms. Mansker’s claim in paragraph 21 of her declaration that constructing a firebreak along the boundary between the state-managed lands and PTA will stop fires that start off-base from burning onto the installation lacks any factual support. That firebreak existed in 1999 when the large Pu‘u Anahulu fire burned toward PTA. The firebreak, which was originally bulldozed in 1994, had been adequately maintained, and the PTA fire department was on site to backfire from the break as the flame front approached. The fire department backfired at the appropriate time, but the approaching head fire breached the firebreak on the Ke‘āmuku flow, where it skipped through lavas on the Ke‘āmuku flow that, at the time, were sparsely occupied by fountain grass. This event demonstrates the ineffectiveness of firebreaks in stopping large fires.

21. In addition, I personally observed spotting into Kīpuka Kalawamauna approximately one-half mile in front of the advancing front of the 1994 Pu‘u Anahulu wildfire. I reiterate my opinion that a firebreak alone is not sufficient to stop an approaching large fire. Fountain grass fuels must be managed over large areas and in strategic ways to control the spread of fire. The Army’s failure to manage fountain grass spread is a failure to manage adequately natural resources at PTA.

22. Contrary to Ms. Mansker’s claims, current data support my opinion that wild populations of listed species and other native species are in decline at PTA. To attack my opinion, Ms. Mansker uses misleading data in Table 1 to her declaration, which inaccurately imply an increase in the status of rare plants at PTA. The numbers used in Ms. Mansker’s table reflect the total number of individuals only, and say nothing of how the number of populations (which is very significant to long-term species survival) has changed over time.

23. Finding previously unknown populations on land that had never previously been surveyed for rare plants, as was the case with the 2003-2005 *Silene hawaiiensis* survey, does not, as Ms. Mansker suggests, equate to an increase in the species. Moreover, most of the increases shown between 2003 and 2006 appear to be the results of outplanting efforts on and off-installation, and do not necessarily reflect survival of those outplanting efforts.

24. To give a true picture of species status over time, I added the 1997 Shaw data to the information Ms. Mansker provided in Table 1. In the table showing a nine-year period, major declines in the numbers of *Haplostachys haplostachya*, *Silene lanceolata*, and *Stenogyne angustifolia* between 1997 and 2003 are apparent. Reported increases in *Silene lanceolata* since that time are likely to be a combination of numbers planted into areas outside PTA and new discoveries.

Species name	No. of Individuals in 1997 Shaw book	No. of Individuals in 2003 BO	No. of Individuals in 2006 CEMML Annual Report	Likely causes for change
Hedyotis coriacea	>40	90	225	New discovery, outplanting
Neraudia ovata	12	10	426	Mortality, outplanting
Portulaca sclerocarpa	<30	22	31	No change
Silene lanceolata	>2,500	1,000	10,443	Mortality, outplanting
Solanum incompletum	11	40	1,038	2003- New discovery, 2006- Outplanting
Spermolepis hawaiiensis	>1,000	27	5,270	Highly variable annual
Tetramalopium arenarium	<150	260	601	New discovery - Outplanting
Zanthoxylum hawaiiense	> 125	255	343	New discovery
Asplenium fragile	100-150	605	368	New discovery

Haplostachys haplostachya	>20,000	13,956	12,479	Mortality from fire and browsing
Stenogyne angustifolia	>100,000	7,500	1,533	Mortality from fire and browsing

25. Ms. Mansker's reliance on the biological opinion in paragraph 28 of her declaration to prove Stryker training at PTA will not have irreparable impacts is misplaced. First, the biological opinion addresses only listed species; it does not address harm to the ecosystem at PTA as a whole. Proposed Stryker training would threaten to destroy many once common native plant species that are now rare due to training and other impacts. In addition, the biological opinion's conclusion that Stryker training would not "jeopardize" listed species (*i.e.*, drive them to extinction) does not mean that training-related fires would not destroy individuals or populations of listed species. As the biological opinion makes clear, such adverse impacts are inevitable should Stryker training be allowed to proceed, a conclusion with which I concur.

26. It is my opinion, based upon the highly unique quality of the ecosystems that occur at PTA, the susceptibility of those ecosystems to grass invasion and fire, and other factors, that allowing the Army to proceed with proposed Stryker training at PTA would speed up the decline of the montane dryland forest and shrubland ecosystems found there, resulting in significant adverse impacts.

I declare under penalty of perjury that the forgoing is true and correct to the best of my knowledge, information, and belief.

Dated at Hawi, Hawaii, December 17, 2006.



John Michael Castillo
JOHN MICHAEL CASTILLO

Hilo 'Iaokalani Coalition, et al. v. Donald H. Rumsfeld, et al., Civil No. 04-00502
DAE BMK (D. Haw.); SUPPLEMENTAL DECLARATION OF JOHN
MICHAEL CASTILLO